ABSTRACT

The Effect of Pyridine and Triethylamine Catalysts on Synthesis of 4-benzoyloxy-3-methoxycinnamic Acid Through Microwave Irradiation

Indi Mumtaza

This research aims to observe the effect of pyridine and triethylamine catalysts on the synthesis of 4-benzoyloxy-3-methoxycinnamic acid. It was formed from ferulic acid and benzoyl chloride through acyl substitution nucleophilic reaction by microwave irradiation. This reaction was conducted under 540 W microwave irradiation for 3 minutes (30 second x 6) for both catalysts. The result showed that triethylamine catalyst significantly provided higher yield percentage (71.8%), compared to pyridine (65.3%). This is considerably due to the inductive effect of ethyl on TEA and resonance effect of pyridine which related to its basicity. FT-IR spectrophotometry and ^{1}H-NMR spectrometry profile confirmed that the product for both condition was 4-benzoyloxy-3-methoxycinnamic acid. The purity of the product for both reaction condition was then determined by melting point test, thin layer chromatography (TLC), showed that the product was pure.

Keywords: 4-benzoyloxy-3-methoxycinnamic acid, pyridine, triethylamine microwave irradiation, catalyst